CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT

ESM II, Inc.
Kingsbury Industrial Park
5th Road, Building 3
Kingsbury, Indiana 46345

is hereby authorized to construct

a steel making specialty alloys manufacturing plant consisting of:

a) primary grinding operations (Building #1) processing a maximum of 1,246 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-1), and exhausting at one (1) stack;
b) primary grinding operations (Building #2) processing a maximum of 1,246 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-2), and exhausting at one (1) stack;
c) secondary grinding operations (Building #3) processing a maximum of 1,300 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-3), and exhausting at one (1) stack;
d) a cone blending system consisting of:
   - one (1) cone blender processing a maximum of 6,031 lbs of alloy material per hour, controlled by one (1) baghouse (ID No. S-4), and exhausting at one (1) stack;
   - one (1) material dumping station processing a maximum of 1,517 lbs of alloy material per hour, controlled by one (1) baghouse (ID No. S-5), and exhausting at one (1) stack;
   - one (1) lime storage tanker, handling a maximum of 3,115 lbs of lime per hour, with a maximum storage capacity of 250,000 lbs, controlled by one (1) baghouse (ID No. S-6), and exhausting at one (1) stack; and
   - four (4) silos, loading/unloading a total maximum of 4,000 lbs of alloy material per hour, each with a maximum storage capacity of 30,000 lbs per silo.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-091-5647-00086	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

Construction Conditions

General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).

2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

   (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.

   (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

   (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

   (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-1-7.1(Fees).

   (e) Pursuant to 326 IAC 2-1-4, the Permittee shall apply for an operation permit renewal at least ninety (90) days prior to the expiration date established in the validation letter. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

Operation Conditions

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).

2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

   (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

   (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

   (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

   The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):

   (a) In the event that ownership of this steel making specialty alloys manufacturing plant is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

   (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

   (c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

   (a) Violation of any conditions of this permit.

   (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That a copy of this permit shall be available on the premises of the source.

Malfunction Condition

7. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

Opacity Limitations

8. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:

(a) visible emissions shall not exceed an average of 40 percent (%) opacity in 24 consecutive readings.

(b) visible emissions shall not exceed 60 percent (%) opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

Process Operations

9. That pursuant to 326 IAC 6-3 (Process Operations), the three (3) cyclones (ID Nos. S-1, S-2 and S-3) controlling the primary grinding operations (Bldg. #1), primary grinding operations (Bldg. #2) and secondary grinding operations (Bldg. #3), respectively, shall not exceed the allowable particulate matter (PM) emission rate of 3.0, 3.0 and 3.1 pounds per hour, respectively. Emissions from the cone blending system (cone blender, material dump station, lime storage tanker, and four (4) silos) shall not exceed the allowable PM emission rate of 8.6 pounds per hour.

Cyclone Operating Condition

10. That the the three cyclones (ID Nos. S-1, S-2 and S-3) shall be operated at all times when their respective processes (primary grinding operations - Bldg. #1, primary grinding operations - Bldg. #2, and secondary grinding operations Bldg. #3), are in operation.

(a) The permittee shall take readings of the total static pressure drop across the cyclones, at least once per week. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drops across each cyclone shall be maintained within the range of three (3) and four (4) inches of water. The Preventive Maintenance Plan for the cyclones shall contain troubleshooting contingency and corrective actions for the cyclones when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the cyclones or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed each calendar quarter of the all the cyclones. Defective cyclones shall be replaced. A record shall be kept of the results of the inspection and the number of cyclones replaced.

(e) In the event that a cyclones' failure has been observed:

(i) The affected compartments will be shut down immediately until the failed units have been replaced.

(ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - (317) 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON THE NEXT PAGE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: ESM II, Inc. PHONE NO. (317) 638-1313
LOCATION: (CITY AND COUNTY) Kingsbury, Hancock County
PERMIT NO. 091-5647 AFS PLANT ID: _____ AFS POINT ID: _____ INSP: Pete Kachur
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 19____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 19____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____
ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____
_____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____
_____
REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____
INTERIM CONTROL MEASURES: (IF APPLICABLE) _____
_____
_____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)
MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

ESM II, Inc.
Kingsbury Industrial Park
5th Road, Building 3
Kingsbury, Indiana 46345

The Office of Air Management (OAM) has reviewed an application from ESM II, Inc. relating to the construction and operation of a steel making specialty alloys manufacturing plant consisting of:

a) primary grinding operations (Building #1) processing a maximum of 1,246 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-1), and exhausting at one (1) stack;
b) primary grinding operations (Building #2) processing a maximum of 1,246 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-2), and exhausting at one (1) stack;
c) secondary grinding operations (Building #3) processing a maximum of 712 lbs of alloy material per hour, controlled by one (1) cyclone (ID No. S-3), and exhausting at one (1) stack;
d) a cone blending system consisting of:
   - one (1) cone blender processing a maximum of 6,031 lbs of alloy material per hour, controlled by one (1) baghouse (ID No. S-4), and exhausting at one (1) stack;
   - one (1) material dumping station processing a maximum of 1,517 lbs of alloy material per hour, controlled by one (1) baghouse (ID No. S-5), and exhausting at one (1) stack;
   - one (1) lime storage tanker, handling a maximum of 3,115 lbs of lime per hour, with a maximum storage capacity of 250,000 lbs, controlled by one (1) baghouse (ID No. S-6), and exhausting at one (1) stack; and
   - four (4) silos, loading/unloading a total maximum of 4,000 lbs of alloy material per hour, each with a maximum storage capacity of 30,000 lbs per silo.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
S-1	primary grinding (Bldg. 1)	15	1.417	6,000	150
S-2	primary grinding (Bldg. 2)	15	1.417	6,000	150
S-3	secondary grinding (Bldg. 3)	15	1.417	4,500	150
S-4	cone blender	10	0.667	1,500	70
S-5	material dumping station	15	1.417	4,000	70

Enforcement Issue

IDEM is aware that this steel making specialty alloys manufacturing plant has been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

An application for the purposes of this review was received on March 27, 1996, with additional information received on May 13, 1996.

Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets, 2 pages) for detailed calculations.

Total Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Emissions (tons/year)
PM	42.3

Allowable emissions (as defined in the Indiana Rule) of particulate matter (PM) are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

LaPorte County has been classified as attainment or unclassifiable for Total Suspended Particulate (TSP). Therefore, PM emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Emissions (ton/yr)
PM	11.2

This new source is not a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

There are no New Source Performance Standards (326 IAC 12) applicable to this facility.

40 CFR Part 60.380 (Standards of Performance for Metallic Mineral Processing Plants) is not applicable to this new source. This rule applies to affected facilities in metallic mineral processing plants, constructed after August 24, 1982, where metallic mineral processing plants are defined as any combination of equipment that produces metallic mineral concentrates from ore. The rule further defines metallic mineral concentrates as material containing metallic compounds in concentrations higher than naturally occurring in ore but requiring additional processing to isolate pure metal, and also containing at least one of the following metals (aluminum, copper, gold, iron, lead, molybdenum, silver, titanium, tungsten, uranium, zinc and zirconium) in any of its oxidation states and at a concentration that contributes to the concentrate's commercial value. The metallic mineral concentrates processed by this plant are primarily composed of magnesium, with some calcium, but no significant levels of any of the above listed metals. This plant does not meet the definition of a metallic mineral processing plant per 40 CFR 60.380, and therefore is not subject to this rule.

State Rule Applicability

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has potential PM emissions of greater than 100 tons/yr. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the source. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4. A copy of the applicable rule will be enclosed with the permit.

326 IAC 6-3-2 (Particulate Emission Limitations)

a) The primary grinding operations (Bldg #1) of this steel making specialty alloys manufacturing plant are subject to particulate matter limitations under 326 IAC 6-3-2. Pursuant to this rule, particulate emissions from the primary grinding operations (Bldg. #1) shall be limited by the following equation:

$E = 4.10P^{0.67}$ (for process weights up to 60,000 lbs/hr)
where E = maximum allowable PM emissions (lbs/hr)
P = process weight (tons/hr) = 1,246 lbs/hr = 0.623 tons/hr
$E = 4.10(0.623^{0.67}) = 3.0$ lbs/hr = 13.1 tons/yr

Potential uncontrolled emissions (78.6 tons/yr) are greater than allowable emissions (13.1 tons/yr), therefore, allowable emissions are used for permit status determination. Potential controlled emissions (3.9 tons/yr) are less than allowable emissions, therefore, the primary grinding operations (Bldg. #1) will comply with the requirements of 326 IAC 6-3-2.

b) The primary grinding operations (Bldg. #2) of this steel making specialty alloys manufacturing plant are subject to particulate matter limitations under 326 IAC 6-3-2. Process weights of this process are identical to those of primary grinding operations (Bldg. #1). This process thus has identical particulate matter maximum allowables emissions (3.0 lbs/hr), and will likewise comply with the requirements of 326 IAC 6-3-2.

c) The secondary grinding operations (Bldg #3) of this steel making specialty alloys manufacturing plant are subject to particulate matter limitations under 326 IAC 6-3-2. Pursuant to this rule, particulate emissions from the secondary grinding operations (Bldg. #3) shall be limited by the following equation:

$E = 4.10P^{0.67}$ (for process weights up to 60,000 lbs/hr)
where E = maximum allowable PM emissions (lbs/hr)
P = process weight (tons/hr) = 712 lbs/hr = 0.356 tons/hr
$E = 4.10(0.356^{0.67})$ = 2.1 lbs/hr = 9.0 tons/yr

Potential uncontrolled emissions (44.9 tons/yr) are greater than allowable emissions (9.0 tons/yr), therefore, allowable emissions are used for permit status determination. Potential controlled emissions (2.3 tons/yr) are less than allowable emissions, therefore, the secondary grinding operations (Bldg. #3) will comply with the requirements of 326 IAC 6-3-2.

d) The cone blending system (cone blender, material dumping station, lime storage tanker and four (4) silos) of this steel making specialty alloys manufacturing plant is subject to particulate matter limitations under 326 IAC 6-3-2. Pursuant to this rule, particulate emissions from the cone blender system shall be limited by the following equation:

$E = 4.10P^{0.67}$ (for process weights up to 60,000 lbs/hr)
where E = maximum allowable PM emissions (lbs/hr)
P = process weight (tons/hr) = 6,031 lbs/hr = 3.016 tons/hr
$E = 4.10(3.016^{0.67})$ = 8.6 lbs/hr = 37.6 tons/yr

Potential uncontrolled emissions (7.2 tons/yr) are less than allowable emissions (37.6 tons/yr), therefore, potential uncontrolled emissions are used for permit status determination, and the cone blending system will comply with the requirements of 326 IAC 6-3-2.

326 IAC 5-1-2 (Visible Emission Limitations)

Visible emissions from this source located in an attainment county for PM shall not exceed, except as provided in 326 IAC 5-1-3 (Temporary Exemptions), an average of forty percent (40%) opacity in twenty-four (24) consecutive readings, and sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 189 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

None of these listed air toxics will be emitted from this proposed construction.

Conclusion

The construction of this steel making specialty alloys manufacturing plant will be subject to the conditions of the attached proposed **Construction Permit No. CP-091-5647, Plt ID No. 091-00086.**

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for New Construction and Operation

ESM II, Inc.
Kingsbury Industrial Park
5th Road, Building 3
Kingsbury, Indiana 46345

CP-091-5647, Plt ID-091-00086

On August 1, 1996, the Office of Air Management (OAM) had a notice published in the LaPorte Herald-Argus, LaPorte, Indiana, stating that ESM II, Inc. had applied for a construction permit to construct and operate a steel making specialty alloys manufacturing plant, with cyclone and baghouse particulate matter control. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On August 9, 1996, ESM II, Inc., submitted comments on the proposed construction permit, with additional information received on November 21, 1996, and February 21, 1997. A summary of the comments is as follows:

Comment #1:

(August 9, 1996):
The cyclone units located in our magnesium grinding processes are the mechanism by which we collect out product (dry magnesium powder) from the grinding operation. They are not installed primarily as emission control devices, but as a necessary part of the manufacturing system. Emissions for the grinding process includes only the portion of the material that we are unsuccessful in capturing for use and not a by-product of the process. Therefore, it is our position that the cyclones are integral to the process, and potential emissions must be calculated from the “post cyclone” portion of the process rather than from the “pre-cyclone” portion of the process.

(November 21, 1996):
We are submitting a copy of the stack test report on particulate emission testing that was performed on October 22-23, 1996, on the three (3) cyclones, at the ESM II, Inc. Plant in Kingsbury, Indiana.

(February 21, 1997)
The revised maximum material throughput for Building No. 3 process line will be 1,300 pounds per hour.

Response #1:

Potential emissions for the processes (primary grinding operations - Building #1, primary grinding operations - Building #2, and secondary grinding operations - Building #3) controlled by the cyclones (ID Nos. S-1, S-2 and S-3, respectively) will be calculated including the cyclone control. This is because the cyclones are used to collect all of the product, and are therefore considered to be integral to the normal operation of the facility, per 326 IAC 1-2-55 (Potential Emissions definition). Emission calculations for this source are revised to include the cyclone control in the potential emissions, include the stack test results, and include the revised maximum material throughput for Building No. 3. Revisions to the construction permit and technical support document (TSD) are as follows:

a) Emission calculations (see pages 1-2, Appendix A: Emission Calculations), total allowable emissions and source status of the Technical Support Document (TSD) are revised as follows:

Total Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Emissions (tons/yr)
PM	27.6
PM_{10}	26.1

Allowable emissions (as defined in the Indiana Rule) of particulate matter (PM) are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Section 1 and 3, a construction permit is required.

Source Status

New source PSD Definition (emissions after controls, based on 8,760 hours per year at rated capacity):

Pollutant	Emissions (tons/yr)
PM	21.5
PM_{10}	21.0

b) The reference to Rule 326 IAC 2-6 (Emission Reporting) is removed from the State Rule Applicability Section, because revised potential PM emissions are less than 100 tons per year. Old permit operation condition number three (3), which addresses Rule 326 IAC 2-6, has been deleted from the permit.

c) Under the State Rule Applicability Section, 326 IAC 6-3-2, section c, is revised as follows to address the revised maximum material throughput for the secondary grinding operations (Building #3):

State Rule Applicability

326 IAC 6-3-2 (Particulate Emission Limitations)

c) The secondary grinding operations (Building #3) of this steel making specialty alloys manufacturing plant are subject to particulate matter limitations under 326 IAC 6-3-2. Pursuant to this rule, particulate emissions from the secondary grinding operations (Building #3) shall be limited by the following equation:

$E = 4.10P^{0.67}$ (for process weights up to 60,000 lbs/hr)
where E = maximum allowable PM emissions (lbs/hr)
P = process weight (tons/hr) = 1,300 lbs/hr = 0.65 tons/hr

$E = 4.10(0.65^{0.67}) = 3.1$ lbs/hr = 13.5 tons/yr
Potential emissions (10.4 tons/yr) are less than allowable emissions (13.5 tons/yr), therefore, the secondary grinding operations (Building #3) will comply with the requirements of 326 IAC 6-3-2.

Old operation condition number five (5) (new operation condition nine (9)) is revised to include the aforementioned maximum allowable particulate matter emissions for the secondary grinding operations (Building #3).

d) Upon further review, the OAM has decided to add the following permit operation conditions:

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

(a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

(b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

(c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):

(a) In the event that ownership of this steel making specialty alloys manufacturing plant is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That a copy of this permit shall be available on the premises of the source.

e) Upon further review, the OAM has decided to revise the following permit operation conditions:

Malfunction Condition

7. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

Cyclone Operating Condition

10. That the three cyclones (ID Nos. S-1, S-2 and S-3) shall be operated at all times when their respective processes (primary grinding operations - Bldg. #1, primary grinding operations - Bldg. #2, and secondary grinding operations Bldg. #3), are in operation.

(a) The permittee shall take readings of the total static pressure drop across the cyclones, at least once per week. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drops across each cyclone shall be maintained within the range of three (3) and four (4) inches of water. The Preventive Maintenance Plan for the cyclones shall contain troubleshooting contingency and corrective actions for the cyclones when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the cyclones or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent (%) of full scale and be accurate within $\pm$ 2 percent (%) of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed each calendar quarter of the all the cyclones. Defective cyclones shall be replaced. A record shall be kept of the results of the inspection and the number of cyclones replaced.

(e) In the event that a cyclones' failure has been observed:

(i) The affected compartments will be shut down immediately until the failed units have been replaced.

(ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Mail to: Permit Administration & Development Section
Office Of Air Management
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015

ESM II, Inc.
Kingsbury Industrial Park
5th Road, Building 3
P.O. Box 78
Kingsbury, IN 46345

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____,I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____ .
(Company Name)

4. I hereby certify that ESM II, Inc., Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345, has constructed the steel making alloys manufacturing plant in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on March 27, 1996, and as permitted pursuant to **Construction Permit No. CP-091-5647, Plant ID No.091-00086** issued on _____

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

_____
Signature

_____
Date

STATE OF INDIANA)
)SS
COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana on this _____ day of _____, 19 _____ .

My Commission expires: _____

_____
Signature

_____
Name (typed or printed)

Appendix A: Emission Calculations
Emissions Summary

Company Name: ESM II, Inc.
Address City IN Zip: Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
CP: 091-5647
Plt ID: 091-00086
Reviewer: Luke N. McHale
Date: February 21, 1997

Allowable Emissions Definition (tons/year)

	Emissions Generating Activity				
Pollutant	Primary Grinding (Bldg. 1)	Primary Grinding (Bldg. 2)	Secondary Grinding (Bldg. 3)	Cone Blender System	**TOTAL**
PM	4.07	5.89	10.42	7.19	27.6
PM10	4.07	5.89	10.42	5.68	26.1

Total emissions based on rated capacity at 8,760 hours/year.

New Source PSD Definition (tons/year)

	Emissions Generating Activity				
Pollutant	Primary Grinding (Bldg. 1)	Primary Grinding (Bldg. 2)	Secondary Grinding (Bldg. 3)	Cone Blender System	**TOTAL**
PM	4.07	5.89	10.42	1.11	21.5
PM10	4.07	5.89	10.42	0.58	21.0

Total emissions based on rated capacity at 8,760 hours/year, after control.

Appendix A: Emission Calculations

Metallic Mineral Processing Operations

Company Name: ESM II, Inc.
Address City IN Zip: Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
CP: 091-5647
Plt ID: 091-00086
Reviewer: Luke N. McHale
Date: February 21, 1997

State Potential Emissions (uncontrolled):

Process	Maximum Raw Material Rate (lbs/hr)	Emission Factor per ton material processed (lbs PM/ton)	Emission Factor Reference	Emission Factor per ton material processed (lbs PM10/ton)	Emission Factor Reference	Potential Uncontrolled PM Emissions (tons/yr)	Potential Uncontrolled PM10 Emissions (tons/yr)
Primary Magnesium Grinding (Bldg. 1)	1,246	1.49	(1)*	1.49	(1)*	4.07	4.07
Primary Magnesium Grinding (Bldg. 2)	1,246	2.16	(1)*	2.16	(1)*	5.89	5.89
Secondary Magnesium Grinding (Bldg. 3)	1,300	3.66	(1)*	3.66	(1)*	10.42	10.42
Cone Blender System:							
- Cone Blender	6,031	0.12	(2)	0.06	(2)	1.58	0.79
- Material Dumping Station	1,517	0.12	(2)	0.06	(2)	0.40	0.20
- Lime Storage Tanker	3,115	0.61	(3)	0.61	(3)	4.16	4.16
- Silo Loading/Unloading	4,000	0.12	(2)	0.06	(2)	1.05	0.53
Total State Potential Emissions (tons/yr):						**27.58**	**26.06**

Federal Potential Emissions (controlled):

Process		Potential Uncontrolled PM Emissions (tons/yr)	Potential Uncontrolled PM10 Emissions (tons/yr)	Control Device Type	Control Efficiency	Potential Controlled PM Emissions (tons/yr)	Potential Controlled PM10 Emissions (tons/yr)
Primary Magnesium Grinding (Bldg. 1)		4.07	4.07	Cyclone (S-1)	N/A	4.07	4.07
Primary Magnesium Grinding (Bldg. 2)		5.89	5.89	Cyclone (S-2)	N/A	5.89	5.89
Secondary Magnesium Grinding (Bldg. 3)		10.42	10.42	Cyclone (S-3)	N/A	10.42	10.42
Cone Blender System:							
- Cone Blender		1.58	0.79	Baghouse (S-4)	99.00%	0.02	0.01
- Material Dumping Station		0.40	0.20	Baghouse (S-5)	99.00%	0.00	0.00
- Lime Storage Tanker		4.16	4.16	Baghouse (S-6)	99.00%	0.04	0.04
- Silo Loading/Unloading		1.05	0.53	N/A	0.00%	1.05	0.53
Total Federal Potential Emissions (tons/yr):						**21.49**	**20.96**

Methodology:

Potential Uncontrolled Emissions = Max. Material Rate (lbs/hr) * (1 ton/2,000 lbs) * Emission Factor (lbs PM/ton) * (1 ton/2,000 lbs) * (8,760 hr/yr)

Potential Controlled Emissions = Potential Uncontrolled Emissions * (1 - Control Efficiency)

(1) Emission Factor from stack test on October 22-23, 1996.

*Note: The cyclones are considered integral to the process (because they collect all of the product), thus potential emissions include cyclone control.

(2) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.24-2, for low-moisture ore material handling and transfer (non-bauxite)

(3) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.17-4, for product loading - enclosed truck

Appendix A: Emission Calculations
Emissions Summary

Company Name: ESM II, Inc.
Address City IN Zip: Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
CP: 091-5647
Plt ID: 091-00086
Reviewer: Luke N. McHale
Date: May 13, 1996

Allowable Emissions Definition (tons/year)

	Emissions Generating Activity				
Pollutant	Primary Grinding (Bldg. 1)*	Primary Grinding (Bldg. 2)*	Secondary Grinding (Bldg. 3)*	Cone Blender System	**TOTAL**
PM	13.08	13.08	8.99	7.19	42.3

Total emissions based on rated capacity at 8,760 hours/year.

*Allowables are per 326 IAC 6-3-2

New Source PSD Definition (tons/year)

	Emissions Generating Activity				
Pollutant	Primary Grinding (Bldg. 1)*	Primary Grinding (Bldg. 2)*	Secondary Grinding (Bldg. 3)*	Cone Blender System	**TOTAL**
PM	3.93	3.93	2.25	1.11	11.2

Total emissions based on rated capacity at 8,760 hours/year, with inclusion of control devices.

Appendix A: Emission Calculations

Metallic Mineral Processing Operations

Company Name: ESM II, Inc.
Address City IN Zip: Kingsbury Industrial Park, 5th Road, Building 3, Kingsbury, Indiana 46345
CP: 091-5647
Plt ID: 091-00086
Reviewer: Luke N. McHale
Date: May 13, 1996

State Potential Emissions (uncontrolled):

Process	Maximum Raw Material Rate (lbs/hr)	Emission Factor per ton material processed (lbs PM/ton)	Emission Factor Reference	Potential Uncontrolled PM Emissions (tons/yr)
Primary Magnesium Grinding (Bldg. 1)	1,246	28.8	(1)	78.59
Primary Magnesium Grinding (Bldg. 2)	1,246	28.8	(1)	78.59
Secondary Magnesium Grinding (Bldg. 3)	712	28.8	(1)	44.91
Cone Blender System:				
- Cone Blender	6,031	0.12	(2)	1.58
- Material Dumping Station	1,517	0.12	(2)	0.40
- Lime Storage Tanker	3,115	0.61	(3)	4.16
- Silo Loading/Unloading	4,000	0.12	(2)	1.05
			Total State Potential Emissions (tons/yr):	**209.28**

Federal Potential Emissions (controlled):

Process	Potential Uncontrolled PM Emissions (tons/yr)	Control Device Type	Control Efficiency	Potential Controlled PM Emissions (tons/yr)
Primary Magnesium Grinding (Bldg. 1)	78.59	Cyclone (S-1)	95.00%	3.93
Primary Magnesium Grinding (Bldg. 2)	78.59	Cyclone (S-2)	95.00%	3.93
Secondary Magnesium Grinding (Bldg. 3)	44.91	Cyclone (S-3)	95.00%	2.25
Cone Blender System:				
- Cone Blender	1.58	Baghouse (S-4)	99.00%	0.02
- Material Dumping Station	0.40	Baghouse (S-5)	99.00%	0.00
- Lime Storage Tanker	4.16	Baghouse (S-6)	99.00%	0.04
- Silo Loading/Unloading	1.05	N/A	0.00%	1.05
			Total Federal Potential Emissions (tons/yr):	**11.22**

Methodology:

Potential Uncontrolled Emissions = Max. Material Rate (lbs/hr) * (1 ton/2,000 lbs) * Emission Factor (lbs PM/ton) * (1 ton/2,000 lbs) * (8,760 hr/yr)

Potential Controlled Emissions = Potential Uncontrolled Emissions * (1 - Control Efficiency)

(1) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.24-2, for low-moisture ore dry grinding with air conveying

(2) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.24-2, for low-moisture ore material handling and transfer (non-bauxite)

(3) Emission Factor from U.S.EPA's AP-42, 5th edition, Table 11.17-4, for product loading - enclosed truck